

Notice of Allowability

Application No.

10/730,956

Examiner

Michael Yaary

Applicant(s)

STOODLEY, MARK-GRAHAM

Art Unit

2193

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 03/19/2007.
2. ☒ The allowed claim(s) is/are 1,4,6-8, and 11-20.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material

5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date 20070529.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____


MENG-AL T. AN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Theodore D. Fay III on 05/29/2007.

The examiner has amended the claims of the application as follows:

1. A method of handling an exception, the method comprising:
recognizing that the exception has occurred during execution of a given method;
consulting a stack frame associated with the given method to determine an identity of an object to be unlocked;
removing a lock on the object; and

wherein the method of handling an exception further includes:
determining a program counter address at which the exception has occurred;
determining, from a table, a synchronization depth associated with each instruction of a plurality of instructions associated with the program counter address;
determining a continuous range of program counter addresses associated with an equivalent synchronization depth and wherein an indication of the continuous range of program counter addresses is stored in the table; and
wherein consulting the stack frame includes reading from a location associated with the synchronization depth.
2. (Cancelled)
3. (Cancelled)
4. A computer storage medium containing computer-executable instructions which, when performed by a processor in a computing system, cause the computer system to:

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recognize that the exception has occurred during execution of a given method;
consult a stack frame associated with the given method to determine an identity of an object to be unlocked;
remove a lock on the object;
determine a program counter address at which the exception has occurred;
determine, from a table, a synchronization depth associated with each instruction of a plurality of instructions associated with the program counter address;
determine a continuous range of program counter addresses associated with an equivalent synchronization depth and wherein an indication of the continuous range of program counter addresses is stored in the table; and
wherein consulting the stack frame includes reading from a location associated with the synchronization depth.

5. (Cancelled)

6. The method of claim 1 wherein a just in time compiler of Java programming language code is used to perform the method of handling an exception.

7. The method of claim 1 wherein a first synchronization depth determined for a first instruction differs from a second synchronization depth determined for a directly preceding instruction, wherein determining the continuous range of program counter addresses comprises, storing the second synchronization depth in the table, wherein the table is associated with a given range of program counter addresses, and wherein the given range of program counter addresses includes a program counter address of a directly preceding instruction.

8. The method of claim 1, wherein the plurality of instructions may be arranged in a plurality of basic blocks of code, and wherein the method further comprises:
determining a synchronization depth at a beginning of each basic block of code in the plurality of basic blocks of code.

9. (Cancelled)

10. (Cancelled)

11. The method of claim 1, wherein consulting the stack frame comprises consulting only the stack frame.

12. The method of claim 1, wherein a just in time compiler dedicates a storage location in the stack frame and stores, in the storage location, a reference to the object, and wherein consulting the stack frame comprises consulting the storage location for the reference.

13. The method of claim 1, further comprising:

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responsive to executing a syncenter bytecode in a JAVA virtual machine, placing a reference to the object into the stack frame.

14. The method of claim 1, further comprising:
determining a storage location of the reference in the stack frame according to a depth of the syncenter bytecode in a tree of inlined invocations for the given method.

15. The method of claim 1, further comprising:
releasing the lock by executing a syncexit bytecode in the JAVA virtual machine.

16. The computer storage medium of claim 4, wherein consulting the stack frame comprises consulting only the stack frame.

17. The computer storage medium of claim 4, wherein a just in time compiler dedicates a storage location in the stack frame and stores, in the storage location, a reference to the object, and wherein consulting the stack frame comprises consulting the storage location for the reference.

18. The computer storage medium of claim 4 wherein the computer-executable instructions, when performed by a processor in a computer system, further cause the computer system to:
responsive to executing a syncenter bytecode in a JAVA virtual machine, place a reference to the object into the stack frame.

19. The computer storage medium of claim 4 wherein the computer-executable instructions, when performed by a processor in a computer system, further cause the computer system to:
determine a storage location of the reference in the stack frame according to a depth of the syncenter bytecode in a tree of inlined invocations for the given method.

20. The computer storage medium of claim 4 wherein the computer-executable instructions, when performed by a processor in a computer system, further cause the computer system to:
release the lock by executing a syncexit bytecode in the JAVA virtual machine.

REASONS FOR ALLOWANCE

3. Claims 1, 4, 6-8, and 11-20 are allowed.

4. The following is an examiner's statement of reasons for allowance:
5. The prior art of record fails to teach or suggest the claimed invention. Specifically the prior art of record fails to teach or suggest determining from a table, a synchronization depth associated with each instruction of a plurality of instructions associated with a program counter address, determining a continuous range of program counter addresses associated with an equivalent synchronization depth and storing an indication of the continuous range of program counter addresses in the table, and when consulting the stack frame, reading from a location associated with the synchronization depth, as recited in independent claims 1 and 4.
6. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Yaary whose telephone number is (571) 270-1249. The examiner can normally be reached on Monday-Friday, 8:00 a.m - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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